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ABSTRACT

Most social interactions involve spontaneous or unintentional behavior. Deliberate behavior, however, represents intentional action. An individual may display a particular emotion or behave in a systematic fashion to convey or conceal a specific type of affect. Often, an observer will question the authenticity of a behavior sequence, deciding whether it is spontaneous or deliberate. This report examines the cognitive basis underlying this discrimination. Thirty-six observers viewed a sequence of nonverbal behavior that was described as being either spontaneous (the stimulus person was filmed with a hidden camera) or deliberate (the person was acting). While watching the videotape, observers segmented behavior into meaningful units. Results indicated that observers who believed that they were watching deliberate behavior generated approximately twice as many units for the nonverbal sequence as compared to observers who believed that they were viewing spontaneous action. The findings are discussed in terms of a cognitive schema that an observer uses in the active organization of behavioral events. (Authors/CJ)

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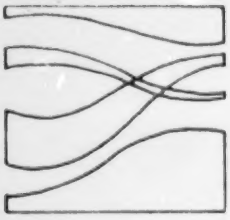

Technical Report No. 565

Perceived Structure of Nonverbal Behavior

by Michael L. Atkinson and Vernon L. Allen

U.S. DEPARTMENT OF HEALTH
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Report from the Project on
Studies of Instructional Programming for the Individual Student

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Abstract

Thirty-six observers viewed a sequence of nonverbal behavior that was described as being either spontaneous (the stimulus person was filmed with a hidden camera) or deliberate (the stimulus person was acting). While watching the videotape, observers segmented the behavior into meaningful units. Results indicated that observers who believed they were watching deliberate behavior generated approximately twice as many units for the nonverbal sequence as compared to observers who believed they were viewing spontaneous action. The findings are discussed in terms of a cognitive schema that an observer uses in the active organization of behavioral events.

Perceived Structure of Nonverbal Behavior

Most social interactions involve spontaneous or unintentional behavior. People discuss the morning weather report, ask and answer questions, wave and smile at friends and acquaintances, and so on. For the most part, these actions are not planned--they are indigenous aspects of social discourse. Deliberate behavior, however, represents intentional action. An individual may display a particular emotion, or behave in a systematic fashion in order to convey, or conceal, a specific type of affect. Often, an observer will question the authenticity of a behavior sequence, deciding whether it is spontaneous or deliberate. The present paper examines the cognitive basis underlying this discrimination.

Several explanations have been offered to account for the perception of spontaneity or deliberateness in ongoing behavior. Goffman (1959) asserted that all behavior is deliberate, but is perceived by others as deliberate only in certain situations. In some cases the requirements of a particular role may demand a deliberate performance or the presentation of a very positive self impression (e.g., defendant or job applicant). The observer, being aware of the role requirements, will anticipate deliberate behavior (Jones, Davis, & Gergen, 1961).

In other cases, behavior may be perceived as deliberate as the result of accidental gestures. An actor may inadvertently display nonverbal

actions (e.g., nervous shaking, stuttering, or a guilty expression) that distract from the ongoing behavior. The observer may seriously consider these "unmeant" gestures as indicative of deliberate behavior and erroneously infer that the actor is experiencing difficulty in presenting his intended performance. Ekman and Friesen (1969, 1974) have argued that these gestures are not accidental, but rather are nonverbal actions that have escaped the censorship of the dissembling individual. As such, "leaked" nonverbal responses may be important cues in the detection of deception. Recent reports have extended this notion, identifying specific attributes of spontaneous and deliberate behavior that may be used as cues in discriminating between the two encoding modes (DePaulo, Rosenthal, Eisenstat, Rogers, & Finkelstein, 1978; Ekman, Friesen, & Scherer, 1976; Kraut, 1978; McClintock & Hunt, 1975; Zuckerman, DeFrank, Hall, Larrance, & Rosenthal, 1976).

Arguing from a cognitive orientation, Atkinson and Allen (1979) have suggested that the perception of spontaneity or deliberateness in behavior is directly related to an observer's level of perceptual analysis. Behavior viewed at a fine-grained level does not flow smoothly, and the information extracted from the behavior sequence does not resemble spontaneous action, which tends to be organized at a more global level. In their study, observers were instructed to segment a sequence of nonverbal behavior into either as small (fine-grained level) or as large (global level) units as seemed reasonable and meaningful to them. This technique is described in detail by Newtson, 1973. Following the unitization, observers estimated the degree of spontaneity or deliberateness of the behavior. Results indicated that observers who organized the

behavior at a fine-grained level were more likely to perceive the sequence as deliberate than those who segmented the behavior at a global level, the behavior was identical in both cases. In addition, subjects reported viewing events in the behavior sequence that were consistent with their level of analysis. For example, fine-unit observers reported seeing discrete nonverbal movements in the videotape (blinking of the eyes, breathing, mouth movements), but global-unit observers recalled more general behavior segments such as periods of confusion, attention, and boredom.

Atkinson and Allen (1979) argued that a cognitive approach provides a general theoretical basis for the perception of spontaneity or deliberateness in ongoing behavior. Inference is related to an observer's perceptual organization rather than events in the behavior sequence per se. Indeed, spontaneous behavior may be viewed as deliberate if the sequence is unitized at a fine level. But when will an observer adopt a fine-grained level of analysis? Atkinson and Allen (1979) suggest that unexpected events in the behavior stream (e.g., stuttering, pausing) elicit a shift to fine-grained organization.[1] However, expected events may influence an observer's level of analysis as well. Consider Goffman's (1959) observation that knowledge of particular role requirements may lead to the perception of deliberateness in behavior.

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[1] Newtson (1973) suggested that perceptual organization is related to predictability in the behavior. Unexpected events (stopping in the middle of an action) serve to decrease predictability and, consistent with Heider's (1958) emphasis on predictability in social perception, an observer will be motivated to increase the amount of information gleaned from the behavior sequence (accomplished through a finer level of analysis) reestablishing predictability.

Perhaps the anticipation of deliberate behavior elicits a preparatory shift in the observer's level of analysis. The observer expects deliberate behavior to be encoded at a fine-grained level and, consequently, adopts a fine-grained viewing strategy.

Newtson and his colleagues (Massad, Hubbard, & Newtson, 1979; Newtson & Enquist, 1976; Newtson, Enquist, & Bois, 1977) have proposed a theoretical model for the selective perception of behavior that predicts the kind of preparatory shift outlined above. Briefly, the perception of behavior is accomplished through the monitoring of a critical set of action-defining features. The features selected for monitoring are defined by an "anticipatory schema" (Neisser, 1976)--a cognitive plan that directs perceptual search. Different expectations about a particular behavior sequence "cause" observers to adopt different anticipatory schemata. Thus, an observer's level of analysis is influenced by what he or she expects to see in the behavior prior to actually viewing the sequence. Massad, Hubbard, and Newtson (1979) demonstrated that different expectations about the behavior of the characters in the Heider and Simmel (1944) animated film altered both the segmentation of the behavior sequence and subsequent impressions of the "actors."

The present study attempts to extend the findings of Atkinson and Allen (1979) by examining the effect of anticipated spontaneity or deliberateness on the segmentation of ongoing behavior. Observers viewed one of two stimulus tapes and were instructed to unitize the behavior sequence. Prior to seeing the videotape, half of the observers were informed that the behavior was spontaneous (the stimulus person was

filmed with a hidden camera) and half were told that the behavior was deliberate (the stimulus person had been instructed to act). It was hypothesized that observers in the deliberate set condition would segment the behavior at a finer level than observers in the spontaneous set condition. This prediction follows from the observation that deliberate behavior is encoded at a more fine-grained level than spontaneous behavior (Atkinson & Ailen, 1979). Objectively, deliberate behavior tends to be more exaggerated, repetitive, and disjointed compared to the smooth flow of spontaneous behavior. Consequently, the anticipation of deliberate behavior suggests a fine-grained analysis in the observer's anticipatory schema.

Method

Design

The present experiment employed a 2 x 2 x 2 completely randomized factorial design. The variables were observational sets (spontaneous, deliberate), sex of observer (male, female), and stimulus persons (one, two). Subjects were randomly assigned to the eight conditions as they appeared for participation in the study. Pilot work and an initial analysis of the present data indicated that the segmentation rates for the two stimulus persons were not equal. Specifically, stimulus person number two elicited many more units than stimulus person number one. Nevertheless, the data were collapsed across the stimulus person factor, consistent with the analysis reported by Atkinson and Allen (1979).

Subjects

Subjects were 36 undergraduate students (17 males and 19 females) recruited from an introductory psychology class. They received course credit for their participation. Subjects viewed the stimulus tapes in groups of one to three persons, in semi-isolated booths, depending upon availability.

Stimulus Tape

Observers viewed one of two elementary school children who were chosen randomly from the stimulus tape described by Allen and Atkinson (1978). Each videotape showed a 5th-grade parochial school student (male) watching a teacher present a lesson over a closed-circuit television system. Only the student appeared on the videotape (head and shoulders

view). Both of the stimulus persons were role-playing--that is, they had been instructed to act in a certain manner; to pretend not to understand the lesson when, in fact, they did. Each stimulus tape was 2.5 minutes in duration and was shown without sound.[2]

Apparatus

The stimuli tapes were presented via a closed-circuit television system. Observers sat at a long table divided into three booths by plywood partitions and used an electronic signaling device to segment the ongoing behavior. This device consisted of a thumb switch, one per booth, a bank of light-emitting diodes located in the adjoining room, and a six-volt DC power supply. The experimenter visually monitored and recorded the unitization responses of the observers.

Procedure

The experimenter explained to the subjects that they would see a silent videotape of a child listening to a lesson. The lesson was described as difficult for the child--the teacher on the videotape presented formulae for calculating wattage and resistance; the difference between series and parallel circuits, and so on. Subjects in the spontaneous instructions condition were told that this child did not understand the lesson. The videotaping was done with a hidden camera and the child was completely unaware that he was being filmed (he was behaving, therefore, in a natural, spontaneous manner). Subjects who received

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[2] It was necessary to use role-play behavior in the present study. Behavior segmentation requires movement and the spontaneous behavior of children who are listening to a televised lesson simply does not contain very much movement. This choice of behavior does not present any particular problem to our hypothesis as Atkinson and Allen (1979) have noted.

deliberate instructions were told that the child was acting. That is, he was pretending that he did not understand the lesson at all for the benefit of a teacher who was watching over a closed-circuit television system. He was aware that he was being videotaped and, therefore, he was behaving in a deliberate, intentional manner.

Following the instructional manipulation, the experimenter outlined the general concept of behavior unitization, to demonstrate how an action (closing the door) could be construed as a series of small units or as one global unit. The experimenter asked the subjects to give him "a better idea of what's going on" in the videotape by segmenting the behavior. Subjects were instructed to press the thumb switch when, in their judgment, one meaningful unit ended and another began. It was stressed that there were no right or wrong ways to segment the behavior. The experimenter just wanted to know how the subject did it. Following a posttest questionnaire, subjects were thoroughly debriefed. The entire procedure required approximately 30 minutes.

Results

Success of Experimental Manipulations

The first item of the post-experimental questionnaire assessed the subjects' degree of suspicion and prior knowledge about the experiment. Most subjects believed that the experiment involved an investigation of the perception of behavior in a classroom setting. Other subjects replied that they either did not know the purpose of the study or they offered an explanation consistent with the experimental instructions (e.g., the relation between small and large units). In general, subjects believed that their task was to give the experimenter "a better idea of what's going on" in the videotape.

A second item on the post-experimental questionnaire assessed subjects' awareness of the verbal experimental manipulation. The subjects were asked to indicate whether the child on the videotape had been filmed with a hidden camera or if he was deliberately acting. Only one subject--a female in the spontaneous condition--checked the incorrect response (deliberate acting). She was excluded from further data analysis (thus, $n = 35$). On the whole, the verbal manipulation was successful.

Behavior Segmentation

We hypothesized that observers who believed that they were watching deliberate behavior would segment the videotape at a finer level than subjects who expected spontaneous behavior. The results of a 2 x 2 analysis of variance (ANOVA) supported this prediction. The ANOVA yielded a

main effect for observational set, F (1, 31) = 11.10, $p < .005$. Observers who believed that they were watching deliberate behavior generated approximately twice as many units for the behavior sequence as compared to the spontaneous set observers (M = 17.53, 8.61, respectively). Neither the main effect for sex of observer nor for the interaction between sex and observational set reached significance, F (1, 31) = 0.55 and 2.02, respectively.

Atkinson and Allen (1979) reported an interesting sex effect in their initial study: Females were much more extreme in segmenting the videotape than were males. Overall, women in the global unit condition generated the fewest number of units and women in the fine-grained condition generated the greatest number of units (males generated a moderate number of units in both the global and fine-grained conditions). Consequently, we may have expected a similar pattern of results in the present study. Although the observational set by sex of observer interaction was nonsignificant, inspection of the means revealed findings consistent with Atkinson and Allen (1979). Women generated a fewer number of units than men in the spontaneous set condition (M = 7.8 vs. 9.6, respectively), and a greater number of units in the deliberate set condition (M = 20.6 vs. 14.8, respectively). The planned contrast for this interaction was marginally significant ($p < .07$). Thus, women are somewhat more extreme than men in their natural usage of behavioral units.

Discussion

Results of the present study indicated that the anticipation of a particular kind of behavior sequence (spontaneous or deliberate) affects an observer's perceptual organization. Observers who expected to see deliberate behavior unitized the standard sequence at a finer level than those expecting to view spontaneous behavior. Thus, it would appear that individuals expect certain types of cues to be associated with deliberate behavior and alter their perceptual search appropriately.

But just how does someone alter his or her perceptual search pattern? We conducted a second informal study to obtain some self-report data from observers. Subjects were ushered to a booth in the experimental room facing a closed circuit television monitor. The experimenter explained that they would see a videotape and that their task was to segment the tape into units. After explaining the concept of behavior unitization and answering any questions, the experimenter briefly described the content of the videotape, telling subjects that he wanted to familiarize them with the action. The experimenter described a scenario in which two hypothetical subjects interacted. In the spontaneous condition, one of the subjects, Dave, accidently knocked over a stack of papers. In the deliberate condition, Dave was described as an accomplice of the experimenter who deliberately staged the "accident." At this point, subjects were asked to respond to several "first impressions" questionnaires concerning the characters in the scenario (subjects never actually saw a videotape). Results indicated that subjects expecting spontaneous

behavior were more likely to report that they would attempt to "get a broad, general view of the action" than subjects anticipating deliberate behavior (60% vs. 28%, respectively). Deliberate-set subjects also used more words when writing a description of the action than spontaneous-set subjects (Mdn = 64 vs. 49, respectively), and expected to see more units in the videotape (M = 21 vs. 17, respectively). These data suggest that, at the very least, subjects in the deliberate condition expected to see much more action than subjects in the spontaneous condition. Moreover, the deliberate-set subjects were aware that the action would be at a fine level of analysis (many reported that they would attempt to memorize the events in the upcoming videotape, rather than to get a general view of the action) and, consequently, prepared to segment the behavior at a level appropriate to the expected action.

Although the interaction between observational set and sex of observer was nonsignificant, the data do indicate that women were more extreme in their unitization than men. Atkinson and Allen (1979) report a similar finding. Subjects were instructed to segment a videotape into either as many units (fine-grained condition) or as few units (global condition) as seemed meaningful to them. Results indicated that females generated more units than males in the fine-grained condition and fewer units than males in the global condition. As a consequence of this observational style, women perceived the behavior as being deliberate in the fine-grained condition and as being spontaneous in the global condition. Men did not differ in their perception of the behavior. It is interesting to compare the unitization data for the two studies. The results are quite consistent. For

example, women instructed to use a fine-grained analysis generated a mean of 21.1 units for the 2.5-minute videotape, and women who were informed that they would see deliberate behavior generated a mean of 20.6 units for the same 2.5 minutes of behavior. Taken together, these two studies suggest that the perception of deliberateness or spontaneity in ongoing behavior is a direct function of an observer's level of analysis. Viewed at a fine-grained level, a standard behavior sequence will be seen as deliberate, while a global level will result in the perception of spontaneity. Furthermore, the anticipation of spontaneous or deliberate behavior suggests an appropriate level of analysis to the observer--a level that closely resembles the naive observer's fine-grained (deliberate) or global (spontaneous) unitization.

Deaux and Major (1977) have argued that sex differences in impression formation--females are typically found to be both more extreme and more confident in their judgments of others than males--may be mediated by the manner in which men and women organize behavior. Women employ a finer level of analysis.[3] In their study, Deaux and Major (1977) asked male and female students to unitize the behavior of either a male or a female stimulus person. Results showed no difference in the number of units generated by males or females nor any effects for the sex of the stimulus person. The women observers, however, still tended to rate the stimulus persons more positively, more extremely, and with greater confidence than male observers.

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[3]Theoretically, a fine-grained level of analysis yields a richer information base than a global level of analysis. Consequently, the fine-grained observer may make more extreme judgments with more confidence than the global observer.

Another sex-related variable did produce significant differences in the unitization of the ongoing behavior. All subjects had previously completed the Bem Sex-Role Inventory (Bem, 1974), a measure of psychological sex-role identification, and were classified as either sex-typed (masculine men and feminine women) or androgynous (equal identification with male and female sex-roles). Androgynous subjects unitized both the male and female stimulus tape at about the same level, but sex-typed subjects (both men and women) generated twice as many units for the male stimulus person as compared to the female stimulus person. Deaux and Major (1977) interpret this finding in terms of stimulus salience--sex-typed individuals attended more to the male tape than the female tape because of their psychological concern with sex roles and the traditionally more important role of the male.

The present data support Deaux and Major's (1977) original contention--demographically-defined females were more extreme in their unitization of the behavior sequence than were demographically-defined males. Note, however, that women were not simply organizing the behavior at a finer level than men. Only when the behavior sequence was described as deliberate did females generate more units than males: Spontaneous behavior was treated in exactly the opposite fashion. More important is the fact that both men and women used a fine-grained level of analysis when viewing what they believe to be deliberate behavior. This observation suggests an interesting interpretation of the Deaux and Major (1977) data. Deaux and Major instructed their subjects to watch a videotaped sequence and to segment the behavior into whatever units

seemed reasonable to them. Our observers were given similar instructions, but we also told them to expect either spontaneous or deliberate behavior. Thus, our observers had a prior cognitive framework (a schema) in which to interpret the behavior sequence. Deaux and Major (1977) reported that only sex-typed subjects segmented the behavior at a fine-grained level (androgynous subjects and demographically-defined males and females unitized the videotapes about the same global level). That is, individuals who had prior interpretive schemata unitized the ongoing behavior at a finer level than individuals who had no clear-cut expectations. Since sex-typed individuals are concerned with the appropriate enactment of sex roles, it is reasonable to assume that they anticipated role-played or deliberate behavior from others. Similar to the observers in the present study, the anticipation of deliberate behavior resulted in a fine-grained level of analysis.[4]

It is important to distinguish between the adoption of a fine-grained level of analysis and a shift to a fine-grained level of analysis. The adoption of a fine-grained level of analysis results from anticipated events--the observer expects the action to occur at a particular perceptual level and monitors the behavior at that level. Shifting to a finer level of analysis, however, is the product of unexpected action (see footnote 1). Thus, a given fine-grained level of analysis could result from both expected and unexpected events. The difference lies

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[4] It should be noted that Deaux and Major's (1977) sex-typed subjects differentiated between male and female stimulus persons. Fine-grained unitization occurred only for the male stimulus person--segmentation of the female's behavior was at a global level. Since both the stimuli persons in the present study were males, our interpretation is limited to the organization of male behavior. Deaux and Major's data suggest, however, that a characteristic of the female sex role is spontaneous behavior--women, more than men, are expected to behave in appropriate role behavior.

entirely in the precipitating circumstances.

Most social behavior is organized at a moderate to global level (Barker, 1963). Following the reasoning outlined in this paper, it is hardly surprising that most social interaction is seen as spontaneous. The occurrence of some unexpected event, however, forces the observer to reorganize the social environment and to shift to a finer level of analysis. At this level, the observer gains more information about the target and is able to reduce the uncertainty associated with the unexpected action. The shift to a finer level of analysis may or may not result in the perception of deliberate behavior: It depends on the type of information gleaned at this finer level. For example, the occurrence of a long pause during conversation may result from nervousness, memory lapse, redirected attention, etc., as well as a direct attempt at deliberate behavior (the speaker stopped in order to compose the deliberate performance). Nonetheless, shifting to a finer level of analysis increases the probability that an observer notices novel, repetitive movements in the action and, consequently, increases the likelihood of perceiving the behavior as deliberate (Atkinson & Allen, 1979).

The anticipation of deliberate behavior almost guarantees the conclusion of deliberate behavior. The observer adopts a fine-grained viewing strategy and may even expect otherwise "unexpected" events to occur. A pause, whatever the actual explanation, serves to verify the observer's initial interpretation of the behavior.[5] Furthermore, the lack of any expected events in the behavior stream may also lead to the perception of

[5] As other authors have noted (e.g., Hamilton, 1979), individuals tend to interpret new information in a manner consistent with existing cognitive frameworks.

deliberateness. Newtson, Enquist, and Bois (1977) noted that failure to detect anticipated action-defining features (as stated by the schema) results in uncertainty, and the observer will shift to a finer level of analysis to obtain more information. Thus, the individual occupying a potentially self-serving role may find it very difficult to convince an observer that his or her behavior is authentic. It is little wonder that Diogenes looked so long for an honest man.

References

Allen, V. L., & Atkinson, M. L. The encoding of nonverbal behavior by high- and low-achieving children. Journal of Educational Psychology, 1978, 70, 298-305.

Atkinson, M. L., & Allen, V. L. Level of analysis as a determinant of the meaning of nonverbal behavior. Social Psychology Quarterly, 1979, 42, 270-274.

Barker, R. G. The stream of behavior. New York: Appleton-Centary-Crofts, 1963.

Bem, S. L. The measurement of psychological androgyny. Journal of Consulting and Clinical Psychology, 1974, 42, 155-162.

Deaux, K., & Major, B. Sex-related patterns in the unit of perception. Personality and Social Psychology Bulletin, 1977, 3, 297-300.

DePaulo, B. M., Rosenthal, R., Eisenstat, R. A., Rogers, P. L., & Finkelstein, S. Decoding discrepant nonverbal cues. Journal of Personality and Social Psychology, 1978, 36, 313-323.

Ekman, P., & Friesen, W. V. Nonverbal leakage and clues to deception. Psychiatry, 1969, 32, 88-106.

Ekman, P., & Friesen, W. V. Detecting deception from the body or face. Journal of Personality and Social Psychology, 1974, 29, 288-298.

Ekman, P., Friesen, W. V., & Scherer, K. R. Body movement and voice pitch in deceptive interaction. Semiotica, 1976, 16, 23-27.

Goffman, E. The presentation of self in everyday life. New York: Doubleday, 1959.

Hamilton, D. L. A cognitive-attributional analysis of stereotyping. In L. Berkowitz (Ed.), Advances in Experimental Social Psychology (Vol. 12). New York: Academic Press, 1979.

Heider, F. The psychology of interpersonal relations. New York: Wiley, 1958.

Heider, F., & Simmel, M. An experimental study of apparent behavior. American Journal of Psychology, 1944, 57, 243-259.

Jones, E. E., Davis, K. E., & Gergen, K. Role playing variations and their informational value for person perception. Journal of Abnormal and Social Psychology, 1961, 63, 302-310.

Kraut, R. E. Verbal and nonverbal cues in the perception of lying. Journal of Personality and Social Psychology, 1978, 36, 380-391.

Massad C. M., Hubbard, M., & Newtson, D. Selective perception of events. Journal of Experimental Social Psychology, 1979, 15, 513-532.

McClintock, C. C., & Hunt, R. G. Nonverbal indicators of affect and deception in an interview setting. Journal of Applied Social Psychology, 1975, 5, 54-67.

Neisser, U. Cognition and reality. San Francisco: W. H. Freeman & Co., 1976.

Newtson, D. Attribution and the unit of perception in ongoing behavior. Journal of Personality and Social Psychology, 1973, 28, 28-38.

Newtson, D., & Engquist, G. The perceptual organization of ongoing behavior. Journal of Experimental Social Psychology, 1976, 12, 436-450.

Newtson, D., Engquist, G., & Bois, J. The objective basis of behavior units. Journal of Personality and Social Psychology, 1977, 35, 847-862.

Zuckerman, M., Hall, J. A., DeFrank, R. S., & Rosenthal, R. Encoding and decoding of spontaneous and posed facial expressions. Journal of Personality and Social Psychology, 1976, 34, 966-977.

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